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Reactor Engineer Intern Program

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Reactor Engineer Intern Program

U.S. Nuclear Regulatory Commission

February 1991

NRC's Office of Nuclear Reactor Regulation (NRR) established the Reactor Engineer Intern Program* in April 1988 to bring new talent into professional positions in NRR and the regions. The first intern, Sheri Peterson (center), graduated in April 1990. Thomas E. Murley, Director of NRR, is on the left, and James M. Taylor, NRC Executive Director for Operations, is on the right. There are currently 28 interns enrolled in the program, four of whom have achieved senior status and are ready for graduation and permanent assignments.

*Formerly called the NRR Technical Intern Program

The U.S. Nuclear Regulatory Commission

MR. JAMES M. TAYLOR is the Executive Director for Operations. He is the chief staff official, managing day-to-day operations of the NRC and reporting directly to the five-member Commission. Mr. Taylor was appointed to this post in December 1989. Before that time, he held a number of executive positions in the NRC. Mr. Taylor received a Bachelor of Science degree from the U.S. Naval Academy and a Master of Science and Engineer's degree from the Massachusetts Institute of Technology.

"Attracting and retaining high-quality individuals is the key to this agency's effectiveness in carrying out its regulatory responsibilities. We need to ensure a continuing supply of skilled professionals if we are to maintain a highly capable workforce. Interns are one of our most valuable resources for meeting these future needs. I welcome the new graduates of this program into their permanent agency positions and urge them to continue to excel as they move to increasingly responsible positions at the NRC."

The mission of the U.S. Nuclear Regulatory Commission (NRC) is to ensure that civilian uses of nuclear materials in the United States—as in the operation of nuclear power plants or in medical, industrial, or research applications—are carried out with proper regard and provision for the protection of public health and safety, the environment, and national security. The NRC accomplishes its mission through the licensing and regulatory oversight of nuclear reactor operations and other activities that require the possession and use of nuclear materials. These activities include transporting and disposing of nuclear materials and wastes and safeguarding nuclear materials and facilities from theft and sabotage. To oversee these operations and activities, the NRC issues rules and standards for licensees and conducts inspection and enforcement activities.

These responsibilities are shared by three principal offices in headquarters, located in the metropolitan Washington, D.C., area: the Office of Nuclear Reactor Regulation, the Office of Nuclear Material Safety and Safeguards, and the Office of Nuclear Regulatory Research. Five regional offices, located in Pennsylvania, Georgia, Illinois, Texas, and California, also perform licensing and regulatory oversight activities.

The Office of Nuclear Reactor Regulation

DR. THOMAS E. MURLEY became Director of NRR in April 1987. Previously he had been Administrator of the Region I Office in King of Prussia, Pennsylvania, a position he assumed in June 1983.
Dr. Murley received a B.S. in Engineering Mechanics from the University of Illinois in 1961 and an Sc.D. in Nuclear Engineering from the Massachusetts Institute of Technology (MIT) in 1965. After graduating from MIT, he was appointed as a postdoctoral fellow at the Karlsruhe Nuclear Research Center in what was then West Germany.

"The strength of the Reactor Engineer Intern Program lies in the technical capability of the interns we hire who excel in various engineering disciplines. By choosing those who have excellent academic qualifications and adding the necessary training and development in nuclear engineering, we are creating top-quality professionals who meet the highest expectations of the NRC. Rotational assignments throughout NRR, to the regions, and to reactor sites increase an intern's overall effectiveness as an NRC employee. We have been able to attract high-quality interns from all over the country.

We are very proud of the young professionals graduating

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The Office of Nuclear Reactor Regulation (NRR) is responsible for the licensing and regulatory oversight of nuclear reactors in the civilian sector. These reactors include both nuclear power reactors operated by the electric utilities and nonpower research reactors, such as those operated by the various universities.

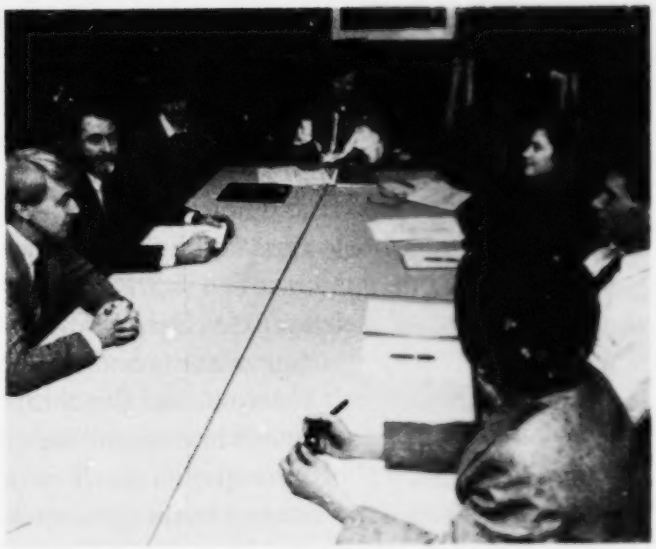
The licensing activities of NRR begin with an extensive review of applications for construction permits and operating licenses for new reactors, and the complex procedures—including inspections from the outset of plant construction throughout a facility's eventual operating lifetime—leading to issuance of permits or licenses and licensing actions taken thereafter.

In recent years, the steady increase in the number of licensed operating nuclear plants and the corresponding decrease in the number of plants still under construction have brought about a substantial shift in NRC activity. Staff energies are currently directed mainly to the safety and regulation of the nuclear power plants now licensed to operate in the United States.

NRR is also responsible for administering the Reactor Inspection Program. This program encompasses all applicant and licensee activities conducted while constructing and operating a nuclear facility. The responsibility for developing, maintaining, and assessing the effectiveness of the reactor program is shared among NRR staff.

(Dr. Thomas E. Murley, continued)

today and those who still have a way to go until graduation. They not only maintain a demanding training schedule but are able, at the same time, to make valuable contributions to their assigned offices. The outstanding performance of these new engineers, our first interns, has made the Reactor Engineer Intern Program an unqualified success. The mentors and the program support staff also deserve special recognition for the amount of time and interest they have invested in these young people. Without their assistance, this program could not have achieved its current success level. We congratulate this year's graduates as they move on to responsible, permanent positions in NRR."



Reactor Engineer Intern Program

The Reactor Engineer Intern Program provides a continuing group of highly qualified, broadly trained personnel who will assume professional positions in NRC. Its objectives are to train and develop recent engineering graduates who have only limited nuclear-related, industrial, and regulatory experience. Through a series of rotational and training assignments, the program gives the interns maximum exposure to the NRC's work and a broad perspective concerning the role played by each office of the NRC. Typically, the program includes rotational assignments at headquarters and at a regional office, as well as appropriate technical training. Upon successful completion of the two-year program, interns are permanently assigned to a technical professional position that is based on their educational background, personal preference, and the needs of the NRC.

Interns are expected to complete approximately 17 weeks of formal training in nuclear reactor technology in the first year of the program and to read extensively to become familiar with NRC responsibilities and regulations.

Regional interns are selected by a regional office and spend most of their time in rotational assignments in that office or at power plant sites located within the region's jurisdiction. Regional interns also spend six months working at the NRR headquarters office in the metropolitan Washington, D.C., area.

Approximately 60 interns are expected to participate in the Reactor Engineer Intern Program at any given time; half work primarily at NRR headquarters and half at the regional offices.

Guidance and Counseling

One of the most important members of the intern program is the mentor, a senior staff member who is assigned to guide and assist one or more interns. Specifically, the mentor is responsible for reviewing and providing guidance on the individual development plan for the intern, advising and encouraging the intern throughout the two-year program, and counseling the intern on any problems related to the program. The mentor meets with the intern regularly.

The supervisor for each six-month rotational assignment develops elements and standards for the intern's performance. Supervisors also monitor progress, evaluate work performed during the rotation, and appraise the intern's performance at the end of each assignment.

The Reactor Engineer Intern Program Manager has the principal responsibility for coordinating the program and for ensuring that problems encountered by the interns are promptly and properly handled. The program manager develops the rotational assignments, ensures that the training schedule is followed and that interns are enrolled in the designated courses in the correct sequence, oversees the preparation of performance elements and standards for each six-month rotational assignment, coordinates travel, participates in selecting new interns, analyzes program activities and makes recommendations for changes, and serves as liaison with the mentors, supervisors, and staff from other NRC offices.

NRC Reactor Engineer Interns

1990 Graduate

SHERI PETERSON received a B.S. in Nuclear Engineering from the University of Michigan and worked at the Consolidated Edison Company before joining the intern program. Ms. Peterson graduated from the intern program in 1990 and is now assigned to a permanent position as Project Manager of Arkansas Nuclear One, Unit 2, in the Division of Reactor Projects, Project Directorate IV-1.

"I joined the NRC in April 1988 after three years of utility experience. I am currently enrolled in the part-time M.B.A. program at the University of Maryland. As an intern, I completed rotational assignments in Project Directorate V, the Office of the Secretary, the Division of Reactor Projects in Region I [King of Prussia, Pennsylvania], and the Technical Specifications Branch. I also completed several in-house training courses. Both the classroom training and the on-the-job training I received as an intern have enhanced my ability to perform in my current position as a project manager. Most important to my success was the help and encouragement of my mentor, Mr. Crutchfield. Through the intern program, I gained a better understanding of the NRC—from the inspection process to the Commissioners' decision-making process."

February 1991 Graduates

GARRY GARTEN received a B.S. in Electrical Engineering from the University of Maryland. He has a First Class Stationary Engineer License in Maryland, a Second Class Steam Engineer License in the District of Columbia, and an EIT Professional Engineer License. Mr. Garten is presently performing inspections in the Division of Reactor Safety in Region I. His permanent NRC assignment will be in the Instrumentation and Control Systems Branch in the Division of Systems Technology.

"As an intern in the NRC Reactor Engineer Intern Program, I performed a nine-month rotational assignment in the Division of Reactor Projects, a six-month assignment in Electrical Systems, a six-month assignment in Special Inspections, a three-month assignment in Region I [King of Prussia, Pennsylvania], and a one-month assignment at a reactor site.

During each rotation, I was given the opportunity to assume the full, work-related responsibilities of job functions within the branch and actively contribute to the resolution of current industry issues. The work assignments in the various branches gave me insights into the roles of the individual jobs, the branches, and the divisions in performing the agency's mission. In addition, rotating among the different divisions gave me a 'big picture' of the interrelationships within the NRC and the agency's relationship with the licensees and the public.

The intern program also offered an extensive amount of nuclear-specific training that I would recommend to any prospective intern. The specialized training and the job assignments have given me the opportunity to improve myself technically and professionally, and I believe the skills that I have learned will be an asset throughout my career."

DEBBIE JACKSON graduated from Howard University with a B.S. in Mechanical Engineering. Before joining the NRC, she was employed by Stone & Webster Engineering Corporation in Boston, Massachusetts, and by Gilbert Commonwealth, where she worked at the Perry and Comanche Peak nuclear power plants. Her permanent assignment will be with the License Renewal Project Directorate, in the Division of Advanced Reactors and Special Projects.

"The intern program gave me experience in a number of different areas. My first rotation was to the Materials and Chemical Engineering Branch (EMCB), in the Division of Engineering and Systems Technology. After completing ten months in EMCB, I spent six weeks in the Special Inspection Branch, in the Division of Reactor Inspection and Safeguards. The next two months were spent between Chattanooga, Tennessee, and Region II [Atlanta, Georgia]. My last regional rotation was to Region I [King of Prussia, Pennsylvania] for two months. The Office of the Secretary of the Commission was my most recent rotational assignment.

The Reactor Engineer Intern Program has afforded me the opportunity to become familiar with the many aspects of the NRC's regulatory mission, to work with numerous headquarters and regional employees, and to obtain vast amounts of knowledge through various inspections and the courses offered at the Technical Training Center [Chattanooga, Tennessee]."

VICTOR McCREE obtained a B.S. in Oceanography at the U.S. Naval Academy. He completed submarine qualifications, was certified as an Engineer by the Director, Naval Nuclear Reactors, and worked in the Office of the Chief of Naval Operations before joining the NRC and entering the intern program. Mr. McCree is presently pursuing an M.S. in Nuclear Engineering at the University of Virginia and will be permanently assigned to the Standardization Project Directorate within the Division of Advanced Reactors and Special Projects.

"In 1988 I made two excellent career decisions: first, to join the NRC and second, to enter the Reactor Engineer Intern Program. As a participant in the intern program, I have benefited significantly both professionally and personally. I have completed a variety of assignments within the Office of Nuclear Reactor Regulation, the Office of the Secretary, and Region I [King of Prussia, Pennsylvania].

As an inspector with the Reactor Special Inspection Branch of the Division of Reactor Inspection and Safeguards, I enhanced my knowledge of reactor systems and developed an understanding of the reactor inspection program by participating in team inspections at operational reactors.

I acquired knowledge of the licensing, enforcement, SALP,* and allegation processes as an assistant project manager for the Nine Mile Point nuclear power plant while assigned to the Division of Reactor Projects.

In the Office of the Secretary, as a technical assistant, I learned to appreciate the mechanisms employed to develop Commission policy, programs, and regulatory positions.

I also increased my knowledge of the inspection program by participating in the development of inspection

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**NRC's Systematic Assessment of Licensee Performance process.*

(Victor McCree, continued)

modules and taking part in assessments of regional implementation of the inspection program.

As a resident inspector at the Calvert Cliffs nuclear power plant, I acquired experience with and knowledge of NRC inspection activities. This experience was comprehensive and will culminate when I am examined by a Region I Resident Inspector Qualification Board.

These assignments were complemented by more than 12 weeks of formal technical training courses, reading and orientation exercises, and task-related seminars. The worthwhile experiences and training facilitated by the program have allowed me to gain a sound understanding of the agency's goals and organization, increase my professsional awareness, and broaden my technical knowledge."

LLOYD ZERR graduated with high honors from Oregon State University (OSU) with a B.S. in Nuclear Engineering, a B.S. in Business Administration Management, and an M.B.A. In studying for this latter degree, Mr. Zerr minored in Radiation Health Physics. His previous work experience was with the U.S. Navy's nuclear power program and as a health physicist at OSU. He was then hired by the NRC as a reactor engineer for the Division of Operational Events Assessment. After working in the Events Assessment Branch, he joined the Reactor Engineer Intern Program. Since then, his rotational assignments have included 7 months as a project engineer and backup project manager, 3 months in the Special Inspection Branch, 14 months in a regional office, including rotations in several divisions, and 6 months at a nuclear power plant. He is currently finishing his last rotation as a technical reviewer for the Atomic Safety and Licensing Appeal Panel.

His permanent assignment will be in the Special Inspection Branch in the Division of Reactor Inspection and Safeguards.

"The intern program provides an extraordinary opportunity for an individual to enhance his/her career development potential, especially for the entry-level technical person whose job-related experience may be minimal after academic pursuits. The intern program serves as a vehicle for exposure, guidance, and smooth transition into the NRC, a move that could otherwise be overwhelming."

Reactor Engineer Interns - Headquarters

AMY ALMOND graduated from the University of Virginia with a B.S. in Mechanical Engineering. She is currently assigned to the Office of Enforcement.

SARITA BREWER received a B.S. in Mechanical Engineering from Howard University. She was employed by the Potomac Electric and Power Company before joining the intern program and is currently assigned to the Division of Systems Technology.

ANN FITZGERALD obtained a B.S. in Mechanical Engineering from Colorado State University. She is currently assigned to the Vendor Inspection Branch of the Division of Reactor Inspection and Safeguards.

MICHAEL FRANOVICH has a B.S. in Nuclear Engineering from the University of Florida. His current assignment is in the Reactor Systems Branch of the Division of Systems Technology.

JEFFEREY HAROLD obtained a B.S. in Nuclear Engineering at Virginia Polytechnic Institute and State University. His current assignment is in the Special Inspection Branch of the Division of Reactor Inspection and Safeguards.

ISABEL HERB obtained a B.S. in Industrial Engineering and Operations Research and an M.S. in Industrial Engineering from Virginia Polytechnic Institute and State University. She is currently assigned to the Human Factors Assessment Branch of the Division of Licensee Performance and Quality Evaluation.

ALICE KELLER received a B.S. in Mechanical Engineering from the University of Florida. She is currently assigned to Project Directorate I-3, Division of Reactor Projects - I/II.

ANTOINETTE MASSEY obtained a B.S. in Physics from Xavier University of Louisiana and an M.S. in Nuclear Engineering from Howard University, where she was a graduate fellow of the Department of Energy. She

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Antoinette Massey (continued)

has done research in nuclear medicine and is currently assigned to the Office of Nuclear Material Safety and Safeguards in the Division of Industrial and Medical Nuclear Safety.

JOHN MONNINGER has a B.S. in Nuclear Engineering from the University of Maryland. He is currently assigned to Region III (Glen Ellyn, Illinois) where he is completing the requirements to become a regional inspector.

DUC NGUYEN obtained a B.S. in Electrical Engineering at George Washington University. He is currently assigned to the Instrumentation and Control Systems Branch in the Division of Systems Technology.

WILLIAM PEGG completed the requirements for a B.S. in Mechanical Engineering at Rutgers University. His current assignment is in the Plant Systems Branch of the Division of Systems Technology.

DARRELL ROBERTS graduated from Virginia Polytechnic Institute and State University with a B.S. in Mechanical Engineering. Before joining the NRC, he was employed by the Virginia Electric Power Company at the North Anna power station. He is currently assigned to the Special Inspection Branch in the Division of Reactor Inspection and Safeguards.

SERITA SANDERS received a B.S. in Mechanical Engineering from Howard University. She is currently assigned to the Events Assessment Branch in the Division of Operational Events Assessment.

DONNA SKAY has a B.S. in Mechanical Engineering from the University of Maryland. She is currently assigned to the Mechanical Engineering Branch of the Division of Engineering Technology.

GIDGET SMITH obtained a B.S. in Ceramic Engineering at Rutgers University and was an NRC intern last summer before joining the Reactor Engineer Intern Program. She is currently assigned to the Operator Licensing Branch in the Division of Licensee Performance and Quality Evaluation.

DAVID SOLORIO graduated from the University of California in Santa Barbara with a B.S. in Nuclear Engineering. He is currently assigned to the San Onofre nuclear power plant in San Clemente, California, where he is completing the requirements to become an inspector.

DEIRDRE SPAULDING received a B.S. in Electrical Engineering from Howard University and an M.S. in Engineering Administration from George Washington University. Her current assignment is to Project Directorate II-2 in the Division of Reactor Projects.

FRANK TALBOT has a B.S. in Nuclear Engineering from the University of Maryland. Before joining the NRC, he was an intern at the Department of Energy. His current assignment is to the Special Inspection Branch of the Division of Reactor Inspection and Safeguards.

LINH TRAN earned a B.S. in Electrical Engineering from the University of Maryland. She is currently assigned to the Reactor Systems Branch of the Division of Systems Technology.

Reactor Engineer Interns - The Regions

ERIC J. BENNER has a B.S. in Nuclear Engineering from Rensselaer Polytechnic Institute. He is currently assigned to the Operations Branch of the Division of Reactor Safety in Region I (King of Prussia, Pennsylvania).

DAVID T. DIEC graduated from San Diego State University with a B.S. in Mechanical Engineering. Before he came to the NRC, he was employed at the Mare Island Naval Shipyard in Vallejo, California. He is currently assigned to the Technical Support Section of the Division of Reactor Projects in Region I (King of Prussia, Pennsylvania).

PETER GALON received a B.S. in Nuclear Engineering from the University of California at Berkeley. Before joining the NRC, he served for four years in the U.S. Marine Corps and was a career scholar intern with the Pacific Gas & Electric Co. He is currently assigned to the Reactor Safety Branch in the Division of Reactor Safety and Projects in Region V (Walnut Creek, California).

JAMES MEDOFF obtained a B.S. in Chemistry from the University of California in Irvine and an M.S. in Materials Engineering from Drexel University. He is currently assigned to the Engineering Branch of the Division of Reactor Safety in Region I (King of Prussia, Pennsylvania).

BRIAN J. McDERMOTT received a B.S. in Nuclear Engineering from Pennsylvania State University. His current assignment is to the Technical Support Section in the Division of Reactor Projects in Region I (King of Prussia, Pennsylvania).

Mentors for NRC Reactor Engineer Interns

HERBERT N. BERKOW is the Director of Project Directorate II-2 in the Division of Reactor Projects - I/II. Mr. Berkow is the mentor for Linh Tran.

LEE H. BETTENHAUSEN is the Chief of the Operations Branch for Region I. Mr. Bettenhausen is the mentor for Brian McDermott.

BRUCE A. BOGER is the Director of the Division of Reactor Projects - III/IV/V. Mr. Boger is the mentor for David Solorio.

JOSE A. CALVO is the Chief of the Technical Specifications Branch in the Division of Operational Events Assessment. Mr. Calvo is the mentor for Jefferey Harold.

FRANK J. CONGEL is the Director of the Division of Radiation Protection and Emergency Preparedness. Mr. Congel is the mentor for Sarita Brewer.

DENNIS M. CRUTCHFIELD is the Director of the Division of Advanced Reactors and Special Projects. Mr. Crutchfield is the mentor for Serita Sanders and Alice Keller, and was the mentor for Sheri Peterson.

JACQUE P. DURR is the Chief of the Engineering Branch for Region I. Mr. Durr is the mentor for David Diec.

BRIAN K. GRIMES is the Director of the Division of Reactor Inspection and Safeguards. Mr. Grimes is the mentor for Victor McCree and Ann Fitzgerald.

GARY M. HOLAHAN is the Deputy Director of the Division of Systems Technology. Mr. Holahan is the mentor for John Monninger.

JON R. JOHNSON is the Chief of Projects Branch #3 for Region I. Mr. Johnson is the mentor for Eric Benner.

EUGENE M. KELLY is the Chief of the Technical Support Staff for Region I. Mr. Kelly is the mentor for James Medoff.

JOHN T. LARKINS is the Chief of Planning, Program and Management Support Branch of the Program Management, Policy Development, and Analysis Staff. Dr. Larkins is the mentor for Gidget Smith.

FRANK J. MIRAGLIA is the Deputy Director of the Office of Nuclear Reactor Regulation. Mr. Miraglia is the mentor for Lloyd Zerr.

SCOTT NEWBERRY is the Chief of the Instrumentation and Control Systems Branch of the Division of Systems Technology. Mr. Newberry is the mentor for Deirdre Spaulding.

KENNETH E. PERKINS, JR., is the Deputy Director of the Division of Reactor Safety and Projects for Region V. Mr. Perkins is the mentor for Peter Galon.

JAMES E. RICHARDSON is the Director of the Division of Engineering Technology. Mr. Richardson is the mentor for Garry Garten and Duc Nguyen.

JACK W. ROE is the Director of the Division of Licensee Performance and Quality Evaluation. Mr. Roe is the mentor for Amy Almond.

CHARLES E. ROSSI is the Director of the Division of Operational Events Assessment. Mr. Rossi is the mentor for Darrell Roberts and Frank Talbot.

CECIL O. THOMAS is the Deputy Director of the Division of Licensee Performance and Quality Evaluation. Mr. Thomas is the mentor for Isabel Herb.

JOHN A. ZWOLINSKI is the Assistant Director for Region III Reactors in the Division of Reactor Projects - III/IV/V. Mr. Zwolinski is the mentor for Michael Franovich.

ASHOK C. THADANI is the Director of the Division of Systems Technology.
Mr. Thadani is the mentor for Debbie Jackson and William Pegg.

MARTIN J. VIRGILIO is the Assistant Director for Region IV & V Reactors in the Division of Reactor Projects - III/IV/V.
Mr. Virgilio is the mentor for Antoinette Massey and Donna Skay.

NRR Program Management, Policy Development, and Analysis Staff

The NRC Reactor Engineer Intern Program is under the overall supervision of the NRR Program Management, Policy Development, and Analysis Staff. The program was established three years ago by the Planning, Program and Management Support Branch and is supervised by its Administration Section. Day-to-day coordination is provided by the Reactor Engineer Intern Program Manager.

FRANK P. GILLESPIE is Director of the Program Management, Policy Development, and Analysis Staff.

JOHN T. LARKINS is Chief of the Planning, Program and Management Support Branch.

ROXANNE GOLDSMITH is the Reactor Engineer Intern Program Manager.

VALERIA H. WILSON is Chief of the Administration Section.